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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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| 08/334,793 | 04/03/97 | PEDERSEN | D 20879-0009 |

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TRIAL & TECHNOLOGY LAW GROUP
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EXAMINER

SPARKS, D

ART UNIT

PAPER NUMBER

2103

3

DATE MAILED:

11/03/97

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

| | | |
|------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 08/834,798 | Applicant(s) Pedersen et al. |
| | Examiner Donald A. Sparks | Group Art Unit 2103 |



Responsive to communication(s) filed on Apr 3, 1997

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

Claim(s) 1-15 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

Claim(s) 1-15 is/are rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on _____ is/are objected to by the Examiner.

The proposed drawing correction, filed on _____ is approved disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All Some* None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

The instant application having Serial No. 08/834,798 has a total of 15 claims pending in the application, there are 4 independent claims and 11 dependent claims, all of which are ready for examination by the examiner.

1. INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in **37 C.F.R. § 1.63**.

2. INFORMATION CONCERNING DRAWINGS

Drawings

The applicant's drawings submitted April 3,1997 were identified by the applicant as informal. However, these drawings are acceptable for examination purposes. A PTOL-948 accompanies the instant office action (See **M.P.E.P. § 707.07(a)**).

3. ACKNOWLEDGMENT OF REFERENCES CITED BY APPLICANT

Information Disclosure Statement

As required by **M.P.E.P. § 2001.06(b)** and **37 C.F.R. § 1.98(d)**, since the instant application has been identified as a continuation application of an earlier filed application and is

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relied upon for an earlier filing date under **35 U.S.C. § 120**, the examiner has reviewed the prior art cited in the earlier related application as required by **M.P.E.P. § 904** and as stated in **M.P.E.P. § 2001.06(b)** no separate citation of the same prior art need be made in the instant application.

4. REJECTIONS NOT BASED ON PRIOR ART

a. DEFICIENCIES IN THE CLAIMED SUBJECT MATTER

Claim Rejections - 35 USC § 112

Claims 11 and 15 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 is rejected on the grounds that the claim is vague and indefinite because it is unclear how the substrate can be disposed face-up upon itself.

Claim 15 is rejected on the grounds that the claim is vague and indefinite because it fails to structurally cooperate the “**bevel edged walls**” with any other structure. Therefore, it is unclear what structure supports the “**bevel edged walls**” and where the “**bevel edged walls**” are located.

5. REJECTIONS BASED ON DOUBLE PATENTING

a. *Non-statutory and non-obvious type w/ application*

The non-statutory double patenting rejection, whether of the obvious-type or non-obvious-type, is based on a judicially created doctrine grounded in public policy (a policy reflected

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in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornam*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321 (b) and © may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78 (d).

Effective January 1, 1994, a registered attorney or agent of record may sign a Terminal Disclaimer. A Terminal Disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15 are rejected under the judicially created doctrine of double patenting over claims 1-15 of U. S. Patent No. 5,657,206 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: A semiconductor chip package comprising a substrate having bonding pads, a first insulation layer, a metal layer, a second insulation layer and an electrically conductive epoxy.

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Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application which matured into a patent. *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

6. REJECTIONS BASED ON LACK OF NON-OBVIOUSNESS

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

-- Claims 1-15 are rejected under 35 U.S.C. § 103 as being unpatentable over Japanese ref.(63-56925).

Specifically directed toward claims 1,8 and 14, the applicant's recited "substrate" is represented by element **2** in figures 1 and 2. The applicant's recited "semiconductor chip" is represented by element **1** in figures 1 and 2. The applicant's recited "plurality of inner bonding pads" are represented by elements **3A** and **4A** in figures 1 and 2. The applicant's recited "first insulation layer" is represented by element **6** in figures 1 and 2. The applicant's recited "metal layer" is represented by element **4** in figures 1 and 2. The applicant's recited "second insulation

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layer" is represented by element 7 in figures 1 and 2. Thus, Japanese ref.(63-56925) discloses the claimed invention except Japanese ref.(63-56925) uses solder instead of an electrically conductive adhesive to establish the electrical connection between external connection points of the chip and the terminals of the substrate. The functional equivalency and interchange ability between solder and electrically conductive adhesive is well recognized in the art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the structure taught by Japanese ref.(63-56925) by replacing the solder represented by element 5 in figures 1 and 2 with an electrically conductive adhesive since such a modification would eliminate the need for the high-temperature heating step required during soldering and would also reduce the possibility of thermal fatigue during thermal cycling. The limitations required by claims 2-4,8-10 and 14 are met by figures 1 and 2 of Japanese ref.(63-56925). Directed toward claims 5,6,11,12 and 15, these limitations are expedients in the semiconductor art and it would have been within the level of skill in the art to dispose the chip face-up on the substrate rather than face-down on the substrate for the purpose of eliminating the joint stress problem associated with flip-chip bonding. The limitation recited in claims 7,13 and 15 are an expedient in the art to eliminate cracking at the connection points thereby sacrificing the integrity of the connection between the chip and the substrate.

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7. CLOSING COMMENTS

Conclusion

a. STATUS OF CLAIMS IN THE APPLICATION

The following is a summary of the treatment and status of all claims in the application as recommended by M.P.E.P. § 707.07(I):

a(1) CLAIMS REJECTED IN THE APPLICATION

Per the instant office action, claims 1-15 have received a first action on the merits and are subject of a first action non-final.

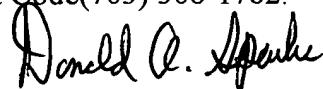
b. DIRECTION OF FUTURE CORRESPONDENCES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald A. Sparks who is normally available from 6:30 A.M. to 3:00 P.M. Monday thru Friday and can be reached at the following telephone number: Area Code(703) 308-1756.

:IMPORTANT NOTE:

If attempts to reach the above noted Examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Leo P. Picard, can be reached at the following telephone number: Area Code(703) 308-0538.

Any inquiry of a general nature or relating to the status of the instant application should be directed to the Group receptionist whose telephone number is Area Code(703) 308-1782.


DONALD A. SPARKS
PRIMARY EXAMINER
ART UNIT 2103

October 22, 1997